Complete Summary

GUIDELINE TITLE

Gestational diabetes.

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Gestational diabetes. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2001 Sep. 14 p. (ACOG practice bulletin; no. 30). [105 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American College of Obstetricians and Gynecologists (ACOG). Gestational diabetes. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 1994 Dec. (Technical Bulletin Number 200).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Gestational diabetes mellitus

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management

Risk Assessment
Screening

CLINICAL SPECIALTY

Endocrinology
Obstetrics and Gynecology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To provide a brief overview of gestational diabetes mellitus (GDM) and provide management guidelines that have been validated by appropriately conducted clinical research

TARGET POPULATION

- All pregnant women (Screening)
- Pregnant women with gestational diabetes mellitus (GDM)

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Screening

1. Assessment of specific risk factors
2. 50-g, 1-hour oral glucose challenge test at 24–28 weeks of gestation using venous plasma or serum samples
3. 100-g, 3-hour oral glucose tolerance test (GTT)

Management

1. Caloric restriction in obese women (body mass index >30) by no more than 33% of calories
2. Early third-trimester ultrasonography to identify women with gestational diabetes mellitus (GDM) who may benefit from insulin therapy
3. Insulin therapy in selected patients, preferably insulin lispro (Humalog)
4. A regular exercise program
5. Antepartum fetal testing for patients with preexisting diabetes and those whose GDM is not well controlled, who require insulin, or have other risk factors such as hypertension or adverse obstetric history
6. Considering cesarean delivery for women with GDM and an estimated fetal weight of 4,500 g or more to reduce permanent brachial plexus injury in the infant
7. Postpartum screening and counseling of women with a history of GDM

MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of glucose tolerance test (GTT)
- Predictive value of preprandial and postprandial glucose measurements
- Fetal morbidity and mortality
- Incidence of diabetes mellitus after gestational diabetes

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The MEDLINE database, the Cochrane Library, and American College of Obstetricians and Gynecologists' (ACOG's) own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985 and June 2000. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document.

Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician-gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and subspecialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (I-III) and levels of recommendations (A-C) are defined at the end of "Major Recommendations" field.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- The laboratory screening test should consist of a 50-g, 1-hour oral glucose challenge at 24–28 weeks of gestation, which may be administered without regard to the time of the last meal.
- A screening test threshold of 140 mg/dL has 10% less sensitivity than a threshold of 130 mg/dL but fewer false-positive results; either threshold is acceptable.
- The screening test generally should be performed on venous plasma or serum samples using well-calibrated and well-maintained laboratory instruments.
- Available evidence does not support a recommendation for or against moderate caloric restriction in obese women with gestational diabetes mellitus (GDM). However, if caloric restriction is used, the diet should be restricted by no more than 33% of calories.
- For women with GDM and an estimated fetal weight of 4,500 g or more, cesarean delivery may be considered because it may reduce the likelihood of permanent brachial plexus injury in the infant.
- When medical nutrition therapy has not resulted in fasting glucose levels less than 95 mg/dL or 1-hour postprandial values less than 130-140 mg/dL or 2-hour postprandial values less than 120 mg/dL, insulin should be considered.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Although universal glucose challenge screening for GDM is the most sensitive approach, there may be pregnant women at low risk who are less likely to benefit from testing. Such low-risk women should have all of the following characteristics:
    1. Age younger than 25 years
    2. Not a member of a racial or ethnic group with high prevalence of diabetes (e.g., Hispanic, African, Native American, South or East Asian, or Pacific Islands ancestry)
    3. Body mass index of 25 or less
    4. No history of abnormal glucose tolerance
    5. No previous history of adverse pregnancy outcomes usually associated with GDM

6. No known diabetes in first degree relative

- There is insufficient evidence to determine the optimal antepartum testing regimen for women with GDM with relatively normal glucose levels on diet therapy and no other risk factors
- Either the plasma or serum glucose level established by Carpenter and Coustan or the plasma level designated by the National Diabetes Data Group conversions are appropriate to use in the diagnosis of GDM. (See Table 1 in the original guideline document.)

Definitions:

Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Levels of Recommendation

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Overall Benefits:

Improved understanding of gestational diabetes mellitus (GDM) and appropriate diagnosis and management of GDM

Specific Benefits:

- Early third-trimester ultrasonography may help identifying women with GDM who would benefit from insulin therapy despite relatively good metabolic control on diet.
- Insulin lispro (Humalog) has a more rapid onset of action than regular insulin and may be useful in improving postprandial glucose concentrations.
- Cesarean delivery in women with GDM and estimated fetal weight of 4,500 g or more may reduce the likelihood of permanent brachial plexus injury in the infant.

POTENTIAL HARMS

Caloric restriction in women with gestational diabetes may cause starvation ketosis. Studies have reported an inverse association between maternal circulating levels of ketone acids in the second and third trimesters and psychomotor development and intelligence in the offspring at 3-5 years of age and through 9 years of age. Although the correlation between IQ and ketone levels was weak, it was statistically significant; therefore, it would be prudent to avoid excessive ketonemia or ketonuria during pregnancy.

CONTRAINDICATIONS

CONTRAINDICATIONS

Early-generation sulfonylureas have been contraindicated in pregnancy because they crossed the placenta and had the potential to stimulate the fetal pancreas, leading to fetal hyperinsulinemia.

QUALIFYING STATEMENTS

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These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001 Sep

GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: None available

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on September 23, 2004. The information was verified by the guideline developer on December 9, 2004.

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